

COLD GAS-DYNAMIC SPRAY REPAIR ON GAS TURBINE ENGINE
COMPONENTS

ABSTRACT OF THE DISCLOSURE

A new method for repairing turbine engine components is provided. The method utilizes a cold gas-dynamic spray technique to repair degradation on turbine blades, vanes and other components. In the cold gas-dynamic spray process particles at a temperature below their fusing temperature are accelerated and directed to a target surface on the turbine blade. When the particles strike the target surface, the kinetic energy of the particles is converted into plastic deformation of the particle, causing the particle to form a strong bond with the target surface. Post-spray processing is then performed to consolidate and homogenize the applied materials and restore integrity to the material properties in the repaired turbine component. Thus, the cold gas-dynamic spray process and post-spray processing can be employed to effectively repair degraded areas on gas turbine components.